REMARKS/ARGUMENTS

The formal drawings are attached hereto to be substituted for the informal drawings on file.

Claims 1 - 7, 9, 10, 14, 16 - 20 and 25 - 35 are pending in the application.

With respect to the rejection of claims 5, 19 and 20 (claims 11, 15, 21 and 22 having been cancelled), under 35 U.S.C. §112, first paragraph, in claim 5, for example, the claim recites that the step c) includes assigning priority weight based on "explicit prioritization of packets," and this is referred to at page 2, line 24 of the specification.

The term "explicit priority assigned" is not used in applicants' claims.

In new claims 25 - 39, claim 39 has the "explicit priority of packets" language in it.

Claims 8, 11, 12, 13, 15 and 21 - 24 have been cancelled.

The rejection of claims 1 - 4, 6 - 10, 12-14, 16-18 and 23-24 under 35 U.S.C. §103(a) as being unpatentable over Denkert et al (US 6,374,117) is respectfully traversed.

Applicants' invention is directed to a method and apparatus of simultaneously transmitting data packets from a hub to multiple users using <u>limited power transmission</u> wherein the power transmission requirements for each user is established.   Data packets are grouped for composite bursts with one or more data packets within a fixed transmission power hub (see Figure 3 which

illustrates three composite power bursts 1, 2 and 3, with packets

1, 3 in composite burst 1, packets 2, 5 and 6 in composite burst 2,

and packets 4, 7 and 8 in composite burst 3. The selected data

packets are transmitted in the composite burst within the limited

power transmission and the steps were repeated until all the data

packets are transmitted. In the exemplary embodiment shown in

Figure 2:

> Incoming data packets received at hub 10 are placed in a
> queue 20, and each data packet provides information to a
> selection algorithm 22 including user destination and
> other information such as quality of service to which the
> end user has subscribed, any delay within queue 20 as
> identified by a flag associated with the packet, and any
> prior association with the data packet. Selection
> algorithm 22 also receives a measure of required
> transmission power for each user based on a measure of
> link quality from the hub to the user which can be the
> measured signal to noise ratio of the user link.
> Selection algorithm 22 then selects one or more data
> packets for transmission in a composite burst so that the
> transmission power of the hub is not exceeded. The
> composite data burst is then transmitted as shown at 26.
> Further, data packets which have been delayed for a
> predetermined period of time, for example, due to power
> requirements exceeding the hub transmission power or
> errors in the data packet addresses, are dropped at 28
> thereby freeing queue 20 for more incoming data packets.
>
> (Applicants' specification, page 3, line 26 - page 4,
> line 4.)

Thus, applicants' invention provides a method whereby:

1. Data packets are assembled for simultaneous transmission.

2. Each packet is assigned a different carrier or is directly

spread by a separate orthogonal code sequence to create a

transmission burst associated with each data packet.

3. Each transmission burst is assigned a power level that ensures proper reception at the intended subscriber station.

4. If all power scaled transmission bursts can be combined into a composite burst that does not exceed the power limit of the transmitter, then the composite burst is sent as a downstream transmission.

5. If all power scaled transmission bursts to be combined into a composite burst exceed the power limit, then a priority algorithm is applied to determine which data packets will actually be sent out in the composite burst, so that the power limit is observed.

6. The packets not included in the composite burst are delayed until the next burst time and are again considered for transmission.

7. The packet selection is performed based on selectable criteria such as: explicit prioritization of the packets, the number of times (if any) a packet has been delayed, QoS criteria, economic value of one packet versus another, etc.

This is not taught by Denkert in any fashion or form. The summary of the Denkert invention set out in column 3, reads as follows:

The present invention overcomes the above-identified deficiencies in the art by providing a method and system for controlling transmit powers based upon time parameters associated with wireless packet data systems. According to one exemplary embodiment of the present invention, down-link transmit power is adapted based upon a queue time of a data packet. For example, as the queue time of a particular data packet stored in a buffer approaches a threshold time, e.g., that specified by a user's subscription for a particular connection, the transmit power for that packet (as well as other packets associated with that connection) can be increased to reduce the remaining delay associated with receiving that packet at the other end of the connection. This results in a prioritization of the transmission of the data packet and, therefore, a reduction in the delay associated with retransmission.

According to another exemplary embodiment of the present invention, link adaptation can also be adjusted based upon this prioritization. For example, if a data packet is prioritized by providing increased transmit power, then the modulation and/or error correction coding scheme used to process the data packet for transmission can also be changed, e.g., to increase throughput.

Further, as set out at column 4 of Denkert:

As mentioned above, according to exemplary embodiments of the present invention, time parameters are considered in adjusting or controlling transmit power. A first example will now be described with respect to FIG. 3, wherein a fixed delay may be desirable for real time communication services in the wireless packet data network. In this example, transmit power can be determined initially as a function of a power control algorithm 300. The power control algorithm 300 can receive measurement data, e.g., received signal strength, pathloss information, bit error rate data, etc., and can determine an initial transmit power level P_{int} based on this information.

Whereas applicants seek to transmit a composite burst of data packets to multiple users within a limited transmission power, Denkert does not do this. As stated at column 5 of Denkert:

> It may be useful to consider the number of packets to be transmitted as part of the decision process for prioritizing transmission <u>by increasing the transmit power</u>. For example, if there has already been a significant delay in transmitting the packets associated with a particular data connection and a large number of packets remain to be transmitted, then it may be desirable to increase the transmit power to reduce the likelihood that one or more packets need to be retransmitted. (Emphasis added.)

Thus, applicants' invention is neither taught nor suggested, but the opposite is clearly the case. The Examiner's contention that Denkert teaches the method of simultaneously transmitting data packet to multiple users using limited transmission power is not the case, because Denkert teaches increasing the transmit power when data packets are backed up.

Thus, the Examiner's reference to column 7, lines 60-67 actually supports applicants' argument. There, the Denkert reference points out transmit power can also <u>be varied</u> upon queue delay. Keeping in mind the above quotes from Denkert, in the context, the reference says that transmit power is increased or decreased according to the prioritizing of the data packets. Some data packets have been prioritized to be transmitted with higher power levels and the queue based power controls according to Denkert is performed for every transmit burst. There is no compositing of transmission burst as shown in applicants' Figure 3.

It is clear that Denkert does not group packets for composite burst transmission in a manner for simultaneously transmitting data packets to multiple users using limited transmission power. What Denkert does to accommodate is to increase the transmit power. (See column 5, lines 40-45). Denkert's basic claim 1 sets out that a processor monitors a length of time during which the data packet has been stored in the buffer and selectively <u>adjusting a transmit power based on the length of time</u>.

Applicants do not adjust the transmit power but seeks to transmit the data packets using "limited transmission power."

New claim 25 is similar to claim 1 but uses the language:

> ...creating a transmission burst for each data packet, and power-scaling the bursts based on the respective transmission power requirement...

and grouping the data packets according to power scaled bursts and a composite burst using a prioritization scheme so that the cumulative power for the composite burst does not exceed the limited transmission power.

New apparatus claim 35 calls for means for generating a transmission burst for each data packet based on the respective power requirements and selection means for selecting one or more transmission bursts and grouping the selected transmission bursts for transmission in a composite burst with the cumulative power for the selected packets not exceeding the limited transmission power, the selection means delaying packets as necessary to accommodate the limited transmission power.

Clearly, the Denkert scheme of adjusting the transmission power according to the needs of the power packets to be transmitted is not in any sense a teaching or suggestion of applicants' invention of transmission of composite bursts within limited transmission power.

In view of the above, further and favorable reconsideration is respectfully requested.

Respectfully submitted,

Jim Zegeer

Jim Zegeer, Reg. No. 18,957
Attorney for Applicants

Attachment: Replacement Sheet of Drawings

Suite 108
801 North Pitt Street
Alexandria, VA 22314
Telephone: 703-684-8333

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Amendments to the Drawings:

Please substitute the attached formal drawings (REPLACEMENT SHEETS) -- Figures 1 - 3 -- for the informal drawings now on file.